INTER-OFFICE COMMUNICATION

TO ...ert Emick, Waste Management & Engineering DATE October 5, 1973

FROM: Raymond RS. Schaefer, Environmental Evaluation Group, NEDO

SUBJECT: U.S. Steel; Waste Acid Lagoon ?

On Monday, October 1, 1973, Mr. Robert Emick accompanied the writer to the U.S. Steel plant in Lorain, Ohio. The purpose of this inspection was to evaluate the presently used waste acid lagoon.

The lagoon is located in the northern portion of the property, on the flood plain of the Black River. The site had been used previously for disposing of waste and molten foundary slag. The slag had been stockpiled here for many years until it was realized that it could be marketed as agglomerate. Subsequent excavation and marketing of the slag produced a pit. This pit is now used for waste acid disposal, and is the lagoon in question.

The insitu soils on the river bank are typical alluvial deposits. These deposits can be classified as a sandy clay deposit, which characteristically has a medium permeability. The dike materials consist of well graded particles from sand to cobble sizes. This type of material has a high permeability.

The lagoon is located within the local ground water flow system. Its liquid level is only a few feet higher than the nearby river, and its depth is below the river bottom. Ground water gradient in the area, is toward the north and west. This means simply that the liquids in the lagoon are flowing, hydraulically, toward the river.

Liquid levels in the lagoon have fluctuated at least two feet. On the day of our visit, the acid level in the lagoon was very nearly two feet below the high acid mark, even though the plant was operating at "peak production".

This low acid level does reflect the seasonal low water table. As the seasons progress, water table and surface projections of the water table will fluctuate. In this season of the year, the water table is almost at its lowest levels. Because of this, ground water connected ponds will also reflect the seasonally low water table. Just as pond water level changes, this lagoon's liquid level will also change with the seasons.

The permeability of the surrounding material will allow easy percolation of the acid into the ground, and directly into ground water. This acid will then be encorporated into ground water flow and eventually will end up in the Black River.

cc: Andy Turner
Russ Stein